central file

Commonwealth Edison
One First National Plaza, Chicago, Illinois
Address Reply to: Post Office Box 767
Chicago, Illinois 60690

December 11, 1979

Mr. James G. Keppler, Director
Directorate of Inspection and
Enforcement - Region III
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Dresden Station Units 2 and 3
Quad-Cities Station Units 1 and 2
Zion Station Units 1 and 2
Minutes of Meeting for Resolution of Items in IE Bulletin No. 79-02, "Pipe Support Base Plate Designs Using Concrete Expansion Anchor Bolts"
NRC Docket Nos. 50-237/249, 50-254/265 and 50-295/304

Dear Mr. Keppler:

On Monday, November 26, 1979, a meeting was held at Commonwealth Edison Company Corporate Offices between members of your Staff, Sargent & Lundy and Commonwealth Edison to discuss the results of Commonwealth Edison's concrete expansion test program. Attachment 1 to this letter contains a list of those persons in attendance at this meeting. The purpose of the meeting was to present to members of your Staff the test data results which will provide the basis for terminating at Dresden and Zion Stations the inspection and load testing requirements of IE Bulletin No. 79-02, "Pipe Support Base Plate Designs Using Concrete Expansion Anchor Bolts." Following is a summary of the meeting discussions and copies of the test data presented.

The test data contained in Attachments 2, 3 and 4 for Zion, Dresden and Quad-Cities Stations, respectively, was presented to Messrs. Spessard and Gallagher of your Staff. As the attachments indicate, this data is categorized by system for each unit. Items included in this test data are:

1. Number of plates inspected;
2. Number of anchors load tested;
3. Hangers with dimensional discrepancies;
4. Angularity;
5. Thread engagement; and
6. Shell projection.

8001040 633

DEC 19 1979

KCB
A02

At the conclusion of the data presentation and discussion, Commonwealth Edison summarized for each station the status of inspection and load testing programs, the basis for terminating the inspections and testing and the proposed course of action for closing out discrepancies discovered during these inspections. This summary follows.

A. Zion Station

1. For Zion Unit 1, based upon the test data results contained in Attachment 2 which indicate that the base plate assemblies were properly installed, Commonwealth Edison intends to terminate all load testing and inspections except those noted below.

2. For Zion Unit 2, since to date, minimial data had been taken, a total sample from all systems of approximately 175 plates will be inspected and load tested to ensure that the base plate assembly installation on this unit is no different than on Unit 1. Since both Zion Units 1 and 2 were constructed at approximately the same chronological time, Commonwealth Edison believes that the Unit 2 expansion anchors were installed in exactly the same manner as Unit 1 anchors, i.e., properly.

3. Prior to the startup of either unit (currently late December 1979 for Unit 2 and mid-January 1980 for Unit 1), those baseplates identified as having possible factors of safety of less than 2, i.e., those assemblies potentially having both oversized/flame-cut holes in baseplates and Hilti drop-in anchors, will be inspected and, if necessary, corrected to return the assembly to those factors of safety necessary for operability as defined in Supplement 1 to Revison 1 of the Bulletin. Final disposition of these assemblies with regard to safety factors will be in accordance with Commonwealth Edison's program.

4. Zion Station will continue inspections on both units under the scope of the Bulletin for oversized/flame-cut holes in baseplates and, where necessary, correct those plates with oversized/flame-cut holes to safety factors in accordance with Commonwealth Edison's program.

5. The ultimate capacity of Hilti drop-in anchors has been reevaluated. Tests witnessed by an independent test laboratory have shown drop-in anchors have ultimate capacities substantially higher than those reported in the manufacturers' catalogue. Those plates with factors of safety less than 4 will be evaluated and load tested or replaced to provide a factor of safety greater than 4. Current estimates indicate approximately 40 of these plates may be in this category on each unit.

B. Dresden Station

1. For Dresden Units 2 and 3, based upon the test data results contained in Attachment 3 which indicate that the baseplate assemblies were properly installed, Commonwealth Edison intends to terminate all load testing and inspections except those noted below.

2. Dresden Station will continue inspections on both Units 2 and 3 under the scope of the Bulletin for oversized/flame-cut holes in baseplates and, where necessary, correct those plates to safety factors in accordance with Commonwealth Edison's program.

3. For Units 2 and 3, Dresden Station will continue dimensional documentation on those assemblies which currently have no hanger drawings. These plates will require reanalysis once the hanger load has been determined. The loads will be determined in conjunction with the requirements of IE Bulletin No. 79-14, "Seismic Analyses for As-Built Safety-Related Piping Systems."

C. Quad-Cities Station

As indicated in Attachment 4, the Quad-Cities Station test results to date are very good. However, at this time Commonwealth Edison feels the quantity of data available including the number of systems sampled to be insufficient to terminate the inspections and load testing of the Bulletin. Therefore, Quad-Cities Station has been instructed to continue to gather data for each system until sufficient data and statistics have been obtained ensuring proper installation. At that time, Commonwealth Edison will submit the data base providing the basis for terminating the load testing and inspections required by the Bulletin.

As previously noted, the data contained in Attachments 2 through 4 was presented to indicate Commonwealth Edison's basis for terminating the inspection and load testing program at Zion and Dresden Station. Per the Bulletin requirements, at the conclusion of all the inspections, load testing and necessary evaluations/ modifications Commonwealth Edison will provide the NRC Staff a complete report addressing each of the Bulletin's items.

Please address any questions that you may have concerning this matter to this office.

Very truly yours,

D. L. Peoples
Director of Nuclear Licensing

WFN:mae
attachments (4)

cc: Director, Office of Inspection
and Enforcement

Director, Division of Operating
Reactors

ATTACHMENT 1

ATTENDANCE LIST FOR NRC/COMMONWEALTH EDISON
MEETING ON NOVEMBER 26, 1979

Attendee	Affilitation
Lee Spessard	NRC Region III
E. Gallagher	NRC Region III
T. McKenna	Sargent & Lundy
R. McClure	Sargent & Lundy
R. Hooks	Sargent & Lundy
D. Gullaksen	Sargent & Lundy
G. Pliml	Commonwealth Edison
D. Wozniak	Commonwealth Edison
W. Naughton	Commonwealth Edison

ATTACHMENT 2

INSPECTION AND LOAD TESTING DATA
FOR
ZION STATION

ZION *

UNIT	SYSTEM	TOTAL HANGERS IN SYSTEM	HANGERS F.S. > 4	HANGERS 2 < F.S. < 4	HANGERS F.S. < 2
	FP	5	5	0	0
1	BD	128	128	0	0
	CC	211	211	0	0
	CS	100	100	0	0
	RC	103	103	0	0
	FW	81	81	0	0
	MS	11	11	0	0
	RH	55	55	0	0
	SI	293	293	0	0
	SW	157	150	6	1
	VC	229	229	0	0
1	TOTALS	1373	1366 (99.5%)	6 (0.4%)	1 (0.1%)

* Factors of Safety were determined by reanalysis of the Base Plate Assembly using the proper amplification factors for Base Plate Flexibility

ZION *

UNIT	SYSTEM	TOTAL HANGERS IN SYSTEM	HANGERS F.S. ≥ 4	HANGERS $4 > F.S. \geq 2$	HANGERS F.S. < 2
2	BD	110	110	0	0
	CC	355	352	2	1
	CS	105	105	0	0
	RC	159	156	2	1
	FW	81	81	0	0
	MS	96	96	0	0
	RH	56	55	1	0
	SI	267	267	0	0
	SW	14	11	2	1
	VC	266	266	0	0
	TOTALS	1509	1499 (99.3%)	7 (0.5%)	3 (0.2%)
	TOTALS	2882	2865 (99.4%)	13 (0.5%)	4 (0.1%)

* Factors of Safety were determined by reanalysis of the Base Plate Assembly using the proper amplification factors for Base Plate Flexibility

ZION

PLATES INSPECTED

UNIT	SYSTEM	PLATES IN SYSTEM	PLATES INSPECTED
1	BD	136	63
	CC	233	113
	CS	107	31
	RC	107	47
	FW	105	40
	MS	19	6
	RH	59	17
	SI	327	148
	SW	183	25
	VC	260	154
1	TOTALS	1,536	644 (42%)

ZION

LOAD TEST

UNIT	SYSTEM	ANCHORS LOAD TESTED	ANCHORS FAILED TEST
1	BD	58	0
	CC	119	3
	CS	16	1
	RC	53	2
	FW	21	0
	MS	2	0
	RH	16	0
	SI	134	1
	SW	19	0
	VC	179	1
1	TOTALS	617	8 (1.3%)

ZION

DIMENSIONAL TOLERANCES

UNIT	SYSTEM	TOTAL HANGERS	F.S. < 4
1	BD	24	0
	CC	48	0
	CS	19	0
	RC	32	0
	FW	12	4
	MS	1	0
	RH	8	0
	SI	59	0
	SW	6	0
	VC	42	1
1	TOTALS	251	5 (1.9%)

ZION

ANGULARITY

UNIT	SYSTEM	BOLTS INSPECTED	BOLTS > 4°	
1	BD	244	8	
	CC	426	16	
	CS	139	17	
	RC	192	11	
	FW	140	13	
	MS	15	2	
	RH	71	7	
	SI	572	36	
	SW	104	16	
	VC	538	40	
1	TOTALS	2,441	166	(6.8%)

ZION

THREAD ENGAGEMENT

UNIT	SYSTEM	BOLTS INSPECTED	BOLTS < MIN.
1	BD	179	3
	CC	363	26
	CS	55	0
	RC	129	3
	FW	75	3
	MS	17	3
	RH	45	1
	SI	469	33
	SW	87	4
	VC	494	29
1	TOTALS	1,913	105 (5.5%)

ZION

SHELL PROJECTION

UNIT	SYSTEM	SHELLS INSPECTED	SHELLS PROTRUDING	SHELLS LOAD TESTED	SHELLS FAILED TEST
1	BD	172	36	9	0
	CC	344	18	5	0
	CS	50	16	14	1
	RC	134	4	4	0
	FW	78	8	0	0
	MS	17	2	0	0
	RH	44	11	3	0
	SI	453	68	11	0
	SW	86	10	0	0
	VC	403	49	14	1
1	TOTALS	1,781	222 (8%)	60	2 (3.3%)

ATTACHMENT 3

INSPECTION AND LOAD TESTING DATA
FOR
DRESDEN STATION

DRESDEN *

UNIT	SYSTEM	TOTAL HANGERS IN SYSTEM	HANGERS F.S. > 4	HANGERS 2 < F.S. < 4	HANGERS F.S. < 2
2	CS	8	8	0	0
	CRD	4	4	0	0
	HPCI	35	35	0	0
	IC	9	9	0	0
	LPCI	14	13	1	0
	PS	10	10	0	0
	RBCCW	2	2	0	0
	RF	0	0	0	0
	RSC	1	1	0	0
	SBGT	15	15	0	0
	SW	45	45	0	0
2	TOTALS	143	142 (99.3%)	1 (0.7%)	0 (0.0%)
3	CCSW	0	0	0	0
	CRD	4	4	0	0
	CS	10	10	0	0
	HPCI	33	33	0	0
	IC	8	8	0	0
	LPCI	17	17	0	0
	PS	5	5	0	0
	SBGT	0	0	0	0
	SLC	2	2	0	0
	SW	40	40	0	0
3	TOTALS	119	119 (100.0%)	0 (0.0%)	0 (0.0%)
2 & 3	TOTALS	262	261 (99.6%)	1 (0.4%)	0 (0.0%)

* Factors of Safety were determined by reanalysis of the Base Plate Assembly using the proper amplification factors for Base Plate Flexibility

DRESDEN

PLATES INSPECTED

UNIT	SYSTEM	PLATES IN SYSTEM	PLATES INSPECTED
2	CS	40	37
	CRD	0	0
	HPCI	89	64
	IC	16	3
	LPCI	78	70
	PS	10	1
	RBCCW	0	0
	RF	1	1
	RSC	0	0
	SBGT	32	16
	SW	92	42
2	TOTALS	358	234 (65.3%)
3	CCSW	2	2
	CRD	0	0
	CS	35	27
	HPCI	66	33
	IC	13	2
	LPCI	49	37
	PS	0	0
	SBGT	4	4
	SLC	0	0
	SW	77	32
3	TOTALS	246	137 (55.7%)
2 & 3	TOTALS	604	371 (61.4%)

DRESDEN

LOAD TEST

UNIT	SYSTEM	ANCHORS LOAD TESTED	ANCHORS FAILED TEST
2	CS	103	0
	CRD	0	-
	HPCI	121	9
	IC	10	0
	LPCI	253	6
	PS	0	-
	RBCCW	0	-
	RF	4	0
	RSC	0	-
	SBGT	20	0
	SW	81	0
2	TOTALS	592	15 (2.5%)
3	CCSW	2	0
	CRD	0	-
	CS	77	1
	HPCI	69	0
	IC	8	0
	LPCI	89	0
	PS	0	-
	SBGT	5	0
	SLC	0	-
	SW	40	0
3	TOTALS	290	1 (.3%)
2 & 3	TOTALS	882	16 (1.8%)

DRESDEN

DIMENSIONAL TOLERANCES

UNIT	SYSTEM	TOTAL HANGERS	HANGERS W/O TAB	HANGERS WITH TAB	F.S. ≤ 4
2	CS	27	21	6	1
	CRD	0	0	0	-
	HPCI	46	41	5	1
	IC	2	2	0	-
	LPCI	50	43	7	0
	PS	1	1	0	-
	RBCCW	0	0	0	-
	RF	5	5	0	-
	RSC	0	0	0	-
	SBGT	9	8	1	0
	SW	29	28	1	-
2	TOTALS	169	149	20	2
3	CCSW	1	1	0	-
	CRD	0	0	0	-
	CS	16	13	3	0
	HPCI	31	26	5	0
	IC	1	1	0	-
	LPCI	33	25	8	0
	PS	0	0	0	-
	SBGT	3	3	0	-
	SLC	0	0	0	-
	SW	25	25	0	-
3	TOTALS	110	94	16	0
2 & 3	TOTALS	279	243	36	2

DRESDEN

ANGULARITY

UNIT	SYSTEM	BOLTS INSPECTED	BOLTS > 4°
2	CS	140	9
	CRD	0	-
	HPCI	217	13
	IC	10	0
	LPCI	271	4
	PS	0	-
	RBCCW	0	-
	RF	4	0
	RSC	0	-
	SBGT	53	5
	SW	150	13
2	TOTALS	845	44 (4.7%)
3	CCSW	16	0
	CRD	0	-
	CS	116	5
	HPCI	118	4
	IC	8	0
	LPCI	214	8
	PS	0	-
	SBGT	14	0
	SLC	0	-
	SW	99	6
3	TOTALS	585	23 (4%)
2 & 3	TOTALS	1,430	67 (4.4%)

DRESDEN

THREAD ENGAGEMENT

UNIT	SYSTEM	BOLTS INSPECTED	BOLTS <MIN.
2	CS	86	0
	CRD	0	-
	HPCI	95	0
	IC	10	1
	LPCI	225	1
	PS	0	-
	RBCCW	0	-
	RF	3	0
	RSC	0	-
	SBGT	20	0
	SW	78	0
2	TOTALS	517	2 (.4%)
3	CCSW	2	0
	CRD	0	-
	CS	79	1
	HPCI	63	0
	IC	2	0
	LPCI	85	1
	PS	0	-
	SBGT	5	0
	SLC	0	-
	SW	39	0
3	TOTALS	275	2 (.7%)
2 & 3	TOTALS	792	4 (.5%)

DRESDEN

SHELL PROJECTION

UNIT	SYSTEM	SHELLS INSPECTED	SHELLS PROTRUDING	SHELLS * LOAD TESTED	SHELLS FAILED TEST
2	CS	88	7	7	0
	CRD	0	-	-	-
	HPCI	98	1	1	0
	IC	10	1	1	0
	LPCI	226	1	1	1
	PS	0	-	-	-
	RBCCW	0	-	-	-
	RF	3	0	-	-
	RSC	0	-	-	-
	SBGT	20	1	1	0
	SW	78	0	-	-
2	TOTALS	523	11 (2.1%)	11	1
3	CCSW	2	0	-	-
	CRD	0	-	-	-
	CS	79	0	-	-
	HPCI	63	0	-	-
	IC	2	0	-	-
	LPCI	86	0	-	-
	PS	0	-	-	-
	SBGT	5	0	-	-
	SLC	0	-	-	-
	SW	39	2	2	0
3	TOTALS	276	2 (.7%)	2	0
2 & 3	TOTALS	799	13 (.16%)	13	1 (7.7%)

*Load test at four times design load.

ATTACHMENT 4

INSPECTION AND LOAD TESTING DATA FOR QUAD-CITIES STATION

QUAD CITIES *

UNIT	SYSTEM	TOTAL HANGERS IN SYSTEM	HANGERS F.S. > 4	HANGERS 2 < F.S. < 4	HANGERS F.S. < 2
1	CS	18	18	0	0
	FW	4	4	0	0
	HPCI	68	65	3	0
	MS	14	10	0	4
	RCIC	2	2	0	0
	RHR	54	48	4	2
	SBGT	61	53	2	6
	SW	103	98	5	0
1	TOTALS	324	298 (92.0%)	14 (4.3%)	12 (3.7%)
2	CS	22	21	1	0
	HPCI	41	41	0	0
	MS	2	0	0	0
	RCIC	2	2	0	2
	RHR	79	71	6	0
	RWCU	1	1	0	2
	SBGT	21	19	1	1
	SW	40	40	0	0
2	TOTALS	208	195 (93.8%)	8 (3.9%)	5 (2.4%)
1 & 2	TOTALS	532	493 (92.7%)	22 (4.1%)	17 (3.2%)

* Factors of Safety were determined by reanalysis of the Base Plate Assembly using the proper amplification factors for Base Flate Flexibility

QUAD CITIES

LOAD TEST

UNIT	SYSTEM	ANCHORS LOAD TESTED	ANCHORS FAILED TEST
1	CS	6	0
	FW	0	-
	HPCI	30	0
	MS	0	-
	RCIC	0	-
	RHR	14	1
	SBGT	37	0
	SW	32	0
1	TOTALS	119	1 (0.8%)
2	CS	0	-
	HPCI	1	0
	MS	0	-
	RCIC	0	-
	RHR	5	0
	RWCU	0	-
	SBGT	7	0
	SW	15	0
2	TOTALS	28	0
1 & 2	TOTALS	147	1 (0.7%)